

EVERY PROJECT SHOULD START WITH:

→ **Takt Plan & Zone Maps**

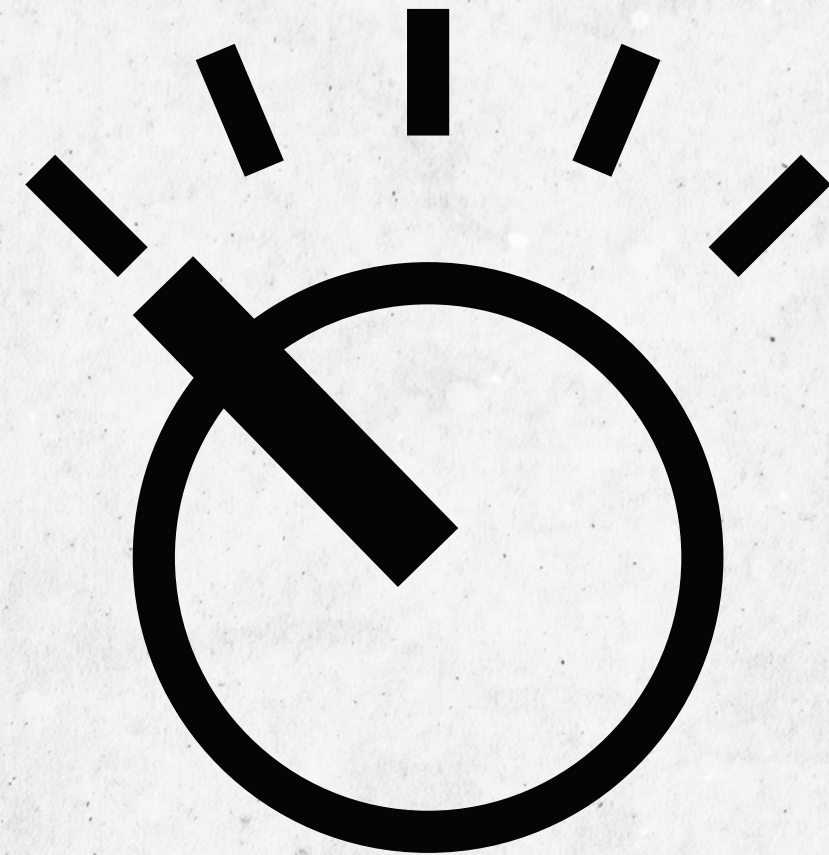
→ **Procurement Log**

→ **Logistics Plan**

→ **Trailer & Signage Design**

→ **Organization Chart**

→ **Risk & Opportunity Register**

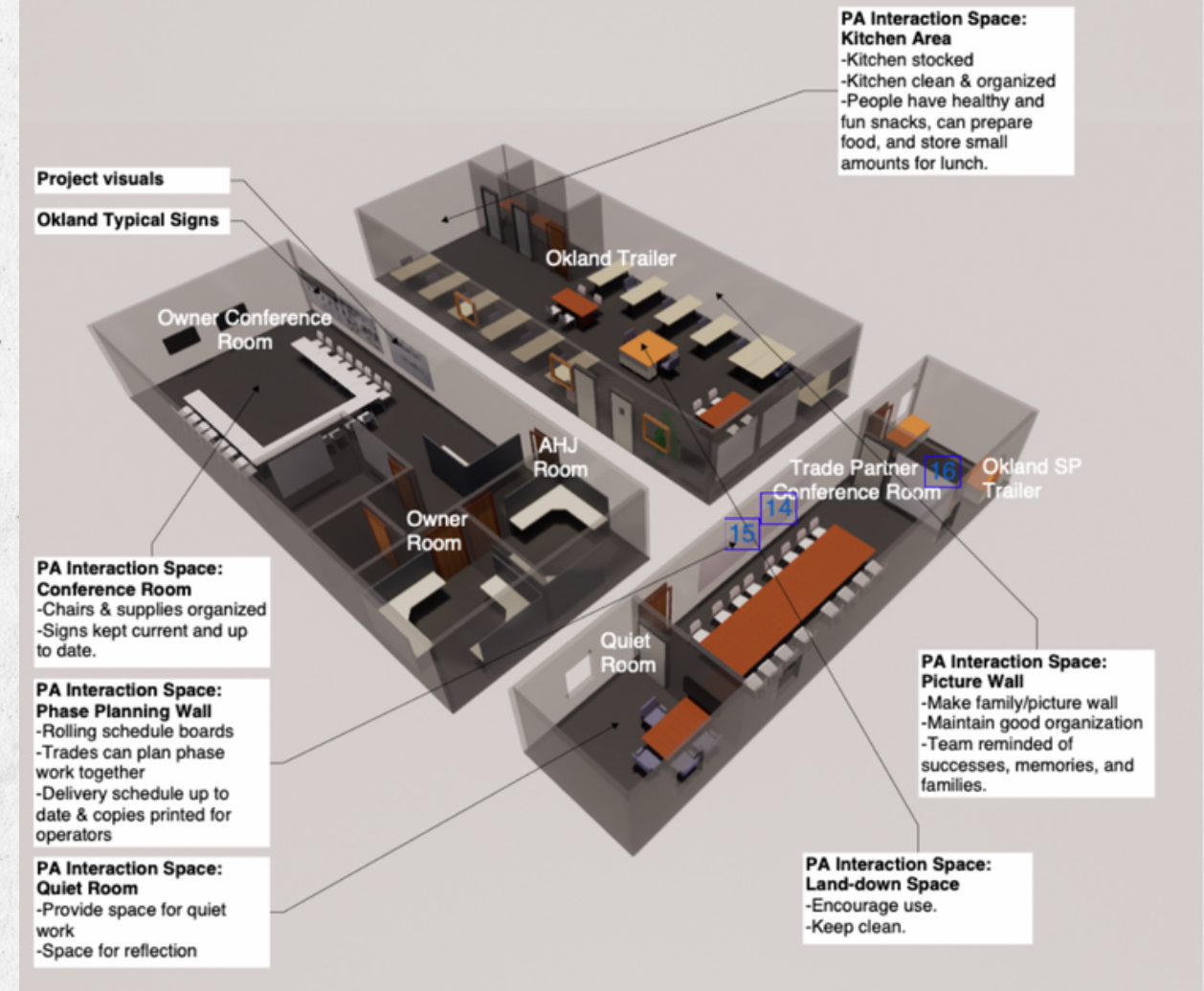
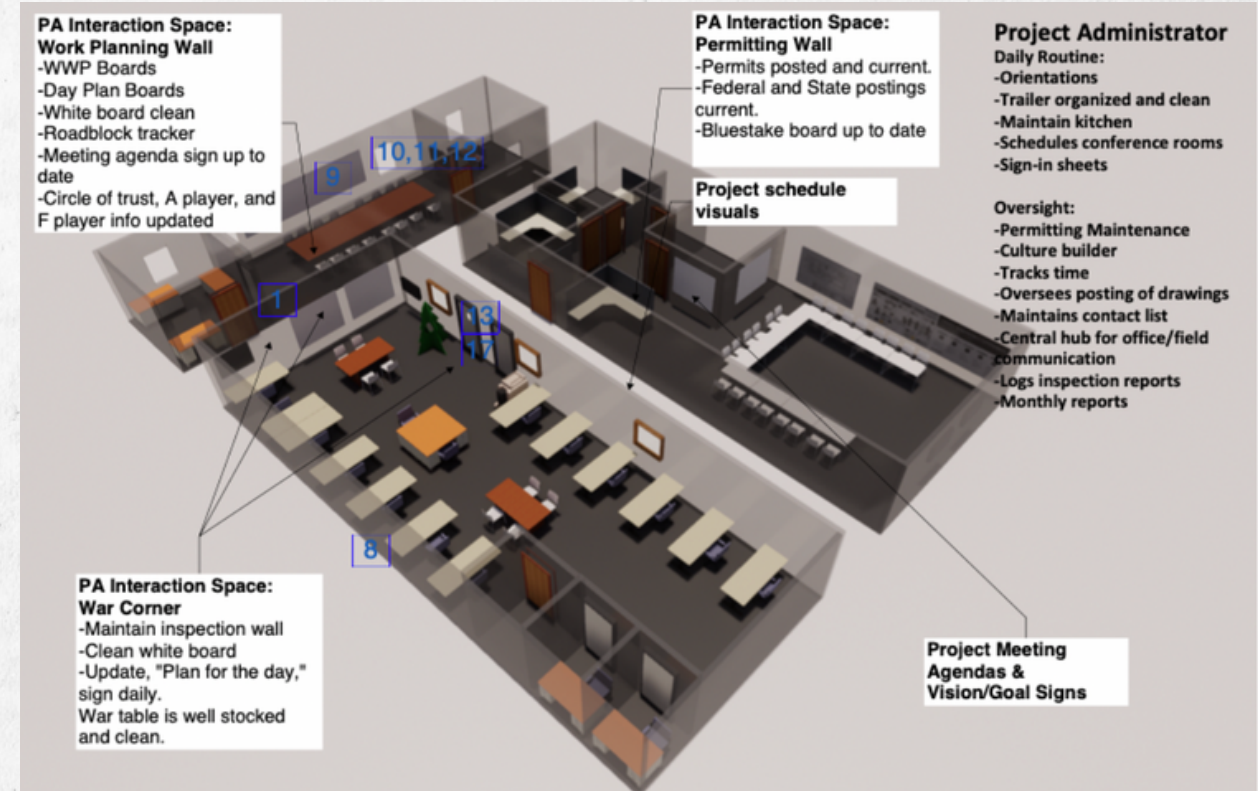


OVER 60% OF
PROJECT SUCCESS
IS DETERMINED
BEFORE NTP

FLOW=TRADES

- WORKING THE **SAME** LONG-TERM PLAN.
- GOING THE **SAME** OR RIGHT DIRECTION.
- MOVING IN THE **SAME** OR RIGHT SEQUENCE.
- PROVIDING THE **SAME** AMOUNT OF VALUE WITH LEVELED CREWS.
- DOING THE **SAME** AMOUNT OF WORK IN EACH ZONE.
- GOING THE **SAME** OR RIGHT SPEED.
- THE **SAME** OR RIGHT DISTANCE APART.
- RECEIVING ALL NEEDED RESOURCES TO PERFORM THE WORK ON TIME.
- BEING ON THE **SAME** TEAM.
- WORKING TOWARD THE **SAME** SHORT INTERVAL PLAN.
- GIVEN THE **SAME** LEVEL OF RESPECT AND INPUT AS GENERAL.
- FLOWING WITHOUT STOPS & RESTARTS.

TRAILER DESIGN & ORG CHART



Project Team			
[ENTER NAME] - Project Director			
[ENTER NAME] - Project Manager			
[ENTER NAME] - Concrete PM	[ENTER NAME] - Assistant Project Manager		
[ENTER NAME] - Concrete FE	[ENTER NAME] - Project Engineer		
Foundations & Structure	Exteriors & Site	Interiors & MEP	
[ENTER NAME] - Field Engineers	[ENTER NAME] - Field Engineer	[ENTER NAME] - FLC	
[ENTER NAME] - Conc. Super - SLC	[ENTER NAME] - Assistant Superintendent		
[ENTER NAME] - Project Superintendent			
[ENTER NAME] - Field Operations Director			

Office
Field

Support			
[ENTER NAME] - Survey	[ENTER NAME] - BIM	[ENTER NAME] - Scheduler	[ENTER NAME] - Safety
[ENTER NAME] - Logistics	[ENTER NAME] - Logistics		

Support		
General Foreman - [ENTER NAME]	Decks - [ENTER NAME]	Walls & Columns - [ENTER NAME]

WEEKLY MEETING PLAN SEQUENCE



ALL PARTS OF THE SYSTEM ARE BROUGHT TOGETHER THROUGH THESE MEETINGS

SUPER/PM



LAST PLANNER



FOREMEN



WORKERS



PROJECT TEAM

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
5am	WORKER DAILY HUDDLE CREW PREPARATION	WORKER DAILY HUDDLE CREW PREPARATION	NO MEETINGS	WORKER DAILY HUDDLE CREW PREPARATION	WORKER DAILY HUDDLE CREW PREPARATION
6am					
7am	SAFETY ORIENTATIONS			SAFETY ORIENTATIONS	
8am	TEAM WEEKLY TACTICAL	DAILY HUDDLE	DAILY HUDDLE	DAILY HUDDLE	DAILY HUDDLE
9am				TEAM COORDINATION	
10am		OAC Meeting			
11am					
12pm					
1pm	FOREMAN DAILY HUDDLE	FOREMAN DAILY HUDDLE	FOREMAN DAILY HUDDLE	FOREMAN DAILY HUDDLE	FOREMAN DAILY HUDDLE
2pm	STRATEGIC PLANNING & PROCUREMENT	TRADE PARTNER WEEKLY TACTICAL		COORDINATION MEETING PLACEHOLDER	
3pm					
4pm					
5pm					
6pm					

STRATEGIC PLANNING & PROCUREMENT
WEEKLY

- Supers
- PEs
- FEs
- PEs

This is where long-term planning takes place. The master schedule is updated and work is made ready per the look-ahead schedule.



TRADE PARTNER WEEKLY TACTICAL
WEEKLY

- Supers
- PEs
- FEs
- Foremen

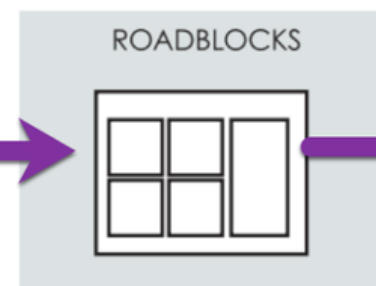
The purpose of this meeting is to completely plan the next week ahead, 100%.



FOREMAN DAILY HUDDLE
DAILY 15min

- Supers
- PEs
- FEs
- Foremen

The purpose of this meeting is to completely plan the next day ahead, 100%.



WORKER DAILY HUDDLE
DAILY 15min

- Supers
- Workers
- FEs
- Foremen

Everyone is brought together into one big social group and the day's plan is communicated to workers.



CREW PREP HUDDLE
DAILY 15min

- Workers
- Foremen

Workers and foremen huddle up to plan their work, prepare, and fill out PTPs as a group



FIRST PLANNER DOCUMENTS



SUPERS WITH FOREMEN



Pull Plan Area

Option 1 Option 2 Option 3

Pull Plan

Implementation Notes

Person 1: Elec., Fire Sprink, etc.

Person 2: Plumber, Mech Pipe, etc.

Person 3: etc.

Master Schedule

Zone Map

Logistics Map

2022 October

28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2				
W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W

Rough-ins

Zone 1	1	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
Zone 2	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 3	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 4	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 5	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 6	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 7	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 8	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 9	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 10	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10
Zone 11	1	1	2	2	3	3	B	B	4	4	5	5	6	6	7	7	8	8	9	9	10

Look-ahead

4 Week Look Ahead

Erect Stair, Pour Stair Pans, Erect Stair, Pour Stair

October

30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W

Weekly Work Plan

Remove Restores

Erect Stair, Pour Stair Pans, Erect Stair

Day Plan

Cleanliness, Organization and the Right-Sizing of Inventory Buffers Are a Projects' Best Indicator of Health and Stability!

PLAN IT FIRST, BUILD IT RIGHT & FINISH AS YOU GO!

SHOUT-OUTS
TP 3 really clean
TP 4 loaned us their forklift and we say thank you

FEEDBACK
Ask them for feedback

SAFETY FOCUS
Crane on the South Side
Weather shows that it is going to rain

PERMITS
Welding on Level 3, Area A - Hot Work Permit
Digging East Side of the project - Dig Permit

DELIVERIES & STRATEGY
Load of conduit for Zone 3, 2:00pm - Show that on the Logistics Plan

TRAINING
Delivery System

PLAN
Activity 1
Activity 4
Activity 5 - Crane

WEATHER
80% Chance of Rain & Cloudy

Logistics Plan

LINEAR MARKUPS

- Direction of Traffic
- Laydown Area
- PPE-Free Zone
- Crane Pads
- Fire Lane
- Building outline
- Pedestrian path
- Loading Platform Zone
- Material Hoist
- Contractor Parking Lot
- Path for equipment and vehicles
- Trade Partner Trailers Area
- Path for heavy equipment
- Restroom Area
- 10' tall fencing
- 6' tall fencing
- Dumpster
- Swing Stage
- Concrete Washout
- Site security

EQUIPMENT

- Crane w/ radius
- Concrete Mixer Truck
- Articulating Boom Lift
- Concrete Pump Truck
- Dump Truck
- Telescopic Forklift
- Scissor Lift

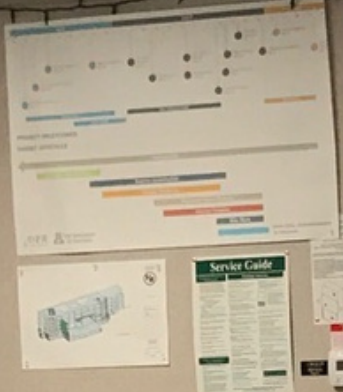
SYMBOLS

- Portable Restrooms w/ Handwash Station
- Emergency Muster Points
- Road Flagger
- No Parking Signage

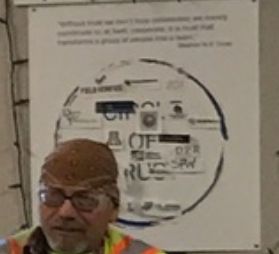


TO **LAST PLANNER VISUALS**

FOREMEN WITH SUPERS

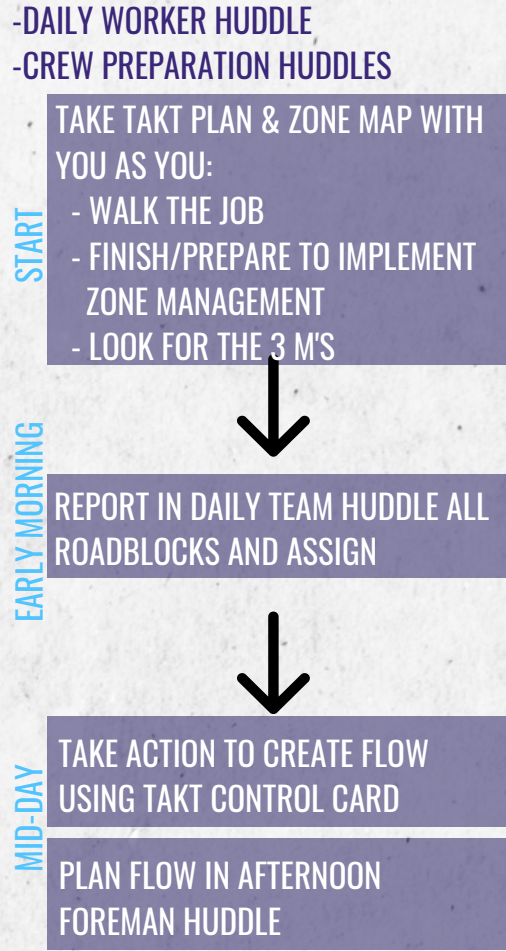


JASON'S
"A" PLAYERS
LAST WEEK!
ONLY
WILSON
ELECTRIC!





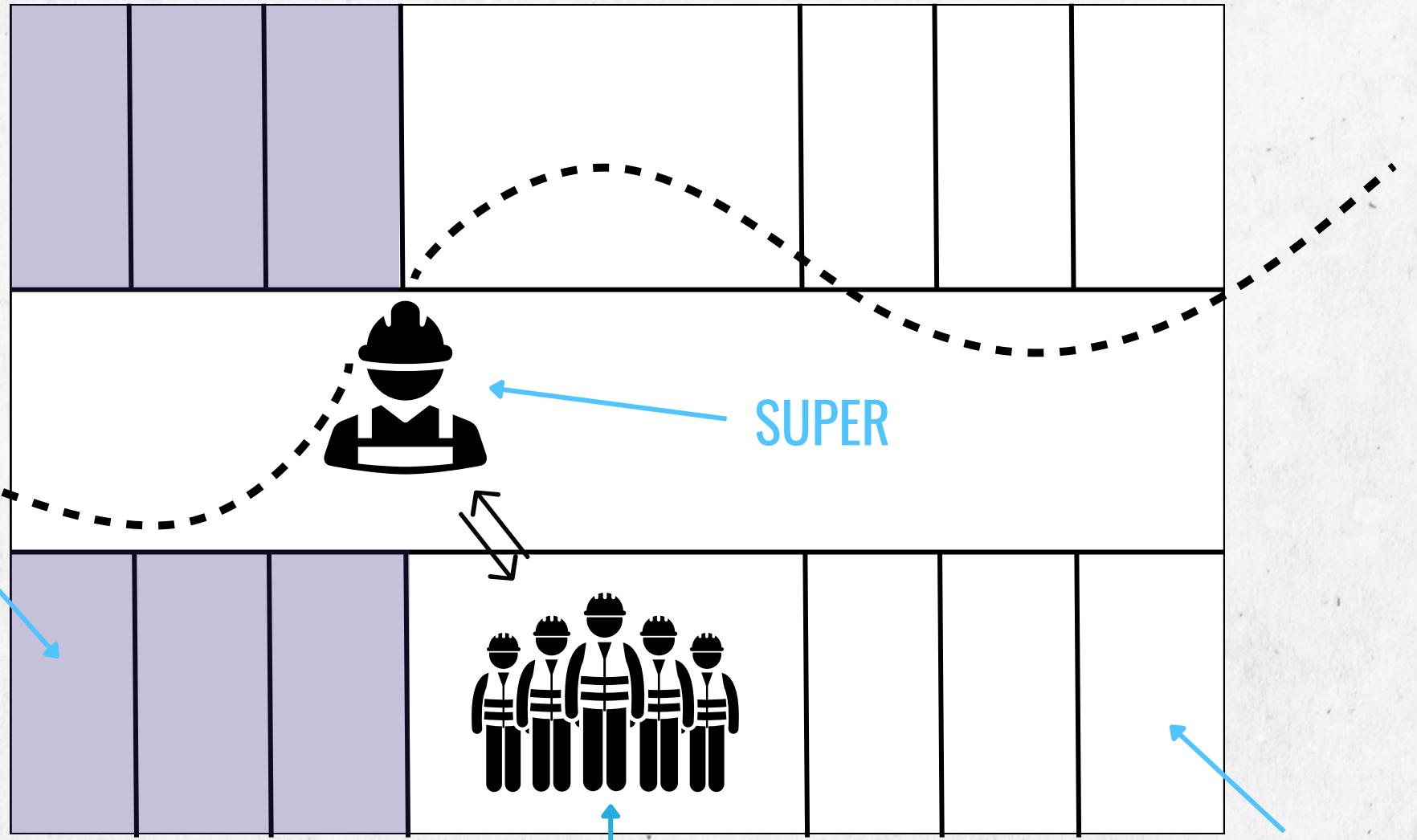
YOUR DAY PLAN



SUPERS AND FOREMEN FOCUS ON WHAT IS CALLED ZONE CONTROL TO FLOW

FINISH AS YOU GO

WALK WITH FOREMAN FOR 5 MINUTES & PUNCH THE WORK FROM YESTERDAY. GET A COMMITMENT TO FINISH



SUPER

CREW

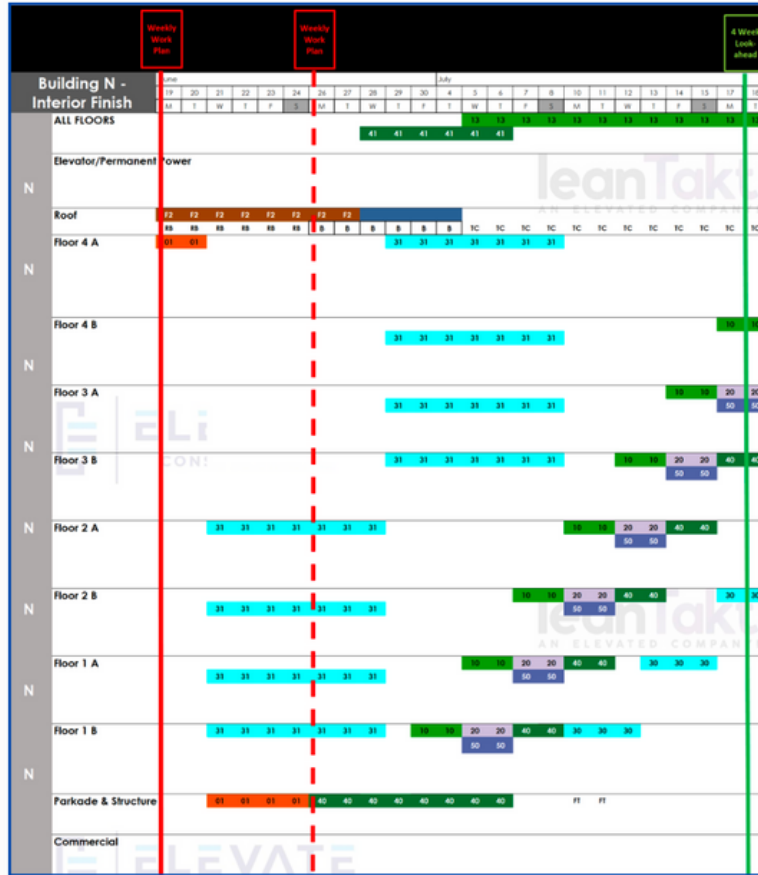
PREPARE AHEAD

WALK WITH FOREMAN FOR 5 MINUTES & INSPECT AREA FOR READINESS. TAKE ITEMS TO NEXT FOREMAN & WORK READY!

RULES:

- WORK BY ZONES --ALL SUPERVISORS MUST BE ABLE TO SEE ZONE BOUNDARIES
- WE PUNCH & FINISH AS WE GO! WE FINISH PUNCH ITEMS COMPLETELY IMMEDIATELY WITH THE CREW WHILE THERE
- FOREMEN & SUPERS MUST PREPARE WORK OUT AHEAD!
- NO GOING SLOWER IF YOU ARE TRACKING BEHIND-WE MUST RECOVER
- NO GOING FASTER, UNLESS...
 - YOU ARE 100% FINISHED
 - ALL WORK IS INSPECTED & SIGNED OFF
 - YOU HAVE USED YOUR BUFFER TO TRAIN WORKERS
 - YOU HAVE PREPARED YOUR NEXT WORK
 - THE NEXT AND PREVIOUS TRADES AGREES
 - IT DOES NOT OVERPRODUCE AND CAUSE WASTE

INTERIORS - Building N



HIGHSTREET MOSAIC

INTERIORS LEGEND

Activity	Color	Code
Backframing	Orange	F2
Roofing (base layer)	Red	RB
Fire sprinkler - rough in	Red	01
Electrical - Feeders & data	Blue	31
Electrical - Feeders & data	Blue	31
Electrical - Feeders & data	Blue	31
Electrical - Feeders & data	Blue	31
Fire sprinkler - rough in	Red	01
Fire sprinkler - rough in	Red	01

S

Safest



C

Cleanest



O

Organized



FOURTH FLOOR



WWP

Floor	Activity	Code
Roof	Backframing	F2
Roof	Roofing (base layer)	RB
4A	Fire sprinkler - rough in	01
2A	Electrical - Feeders & data	31
2B	Electrical - Feeders & data	31
1A	Electrical - Feeders & data	31
1B	Electrical - Feeders & data	31
Parkade & Structure	Fire sprinkler - rough in	01
Parkade & Structure	Fire sprinkler - rough in	01

P

Professional



THIRD FLOOR



HANDOFFS

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4A	Handover	Successor	Handover	Successor	Handover	Successor
PARKADE						01 → 40

E

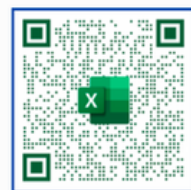
Efficient



SECOND FLOOR



GROUND FLOOR



H

Happiest



SUPERS & FOREMEN TAKE ACTION WHEN THEY FIND...

MUDA - WASTE

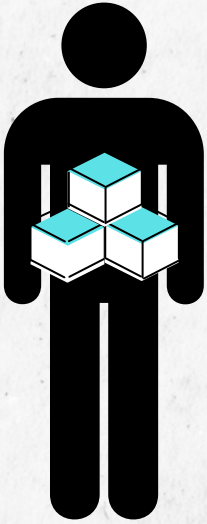
OVERPRODUCTION

WASTE FROM PRODUCING MORE THAN WHAT IS NEEDED



INVENTORY

WASTE RESULTING FROM EXCESS (PRODUCTS, ASSETS, MATERIALS, ETC...) THAT ARE NOT READY TO BE USED



DEFECTS

WASTE FROM AN IMPERFECTION/FAILURE TO MEET QUALITY OR STANDARDS



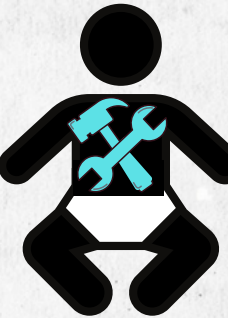
TRANSPORTATION

WASTE IN TRANSPORTING ANYTHING FROM ONE PLACE TO ANOTHER



MOTION

WASTED TIME AND EFFORT RELATED TO UNNECESSARY MOVEMENTS BY PEOPLE



OVER-PROCESSING

WASTES RELATED TO MORE STEPS IN THE WORK FLOW THAN NECESSARY



WAITING

WASTE FROM TIME SPENT WAITING FOR THE NEXT PROCESS TO OCCUR



UNUSED TALENT

WASTES DUE TO UNDERUTILIZATION OF PEOPLE'S TALENTS, SKILLS, AND KNOWLEDGE

MURA - UNEVENNESS

- DEFECTIVE WORK
- ROADBLOCKS
- DELAYED WORK
- PRODUCTION LOSS
- STOPS AND RESTARTS
- UNLEVELED ZONES
- UNLEVELED CREWS
- VARIATION
- TRADE PROCESS BOTTLENECKS
- ZONE BOTTLENECKS



MURI - OVERBURDEN

- WORKERS BEING PUSHED
- WORKERS GOING TOO FAST
- TOO MUCH OVERTIME
- TOO MANY AREAS TO WORK IN
- TOO MUCH CONTEXT SWITCHING
- ZONE WORK DENSITY TOO HIGH
- NOT ENOUGH PEOPLE FOR THE TASK
- FATIGUE FROM WORK CONDITIONS
- WORKING BEYOND TRAINING
- LACK OF NEEDED RESOURCES
- WORK TOO COMPLEX
- LACK OF BREAKS
- LACK OF BUFFERS



CONSTRAINTS ARE

ITEMS THAT ARE A PART OF THE DESIGN OF THE TRAIN OF TRADES THAT CAN BE ADJUSTED

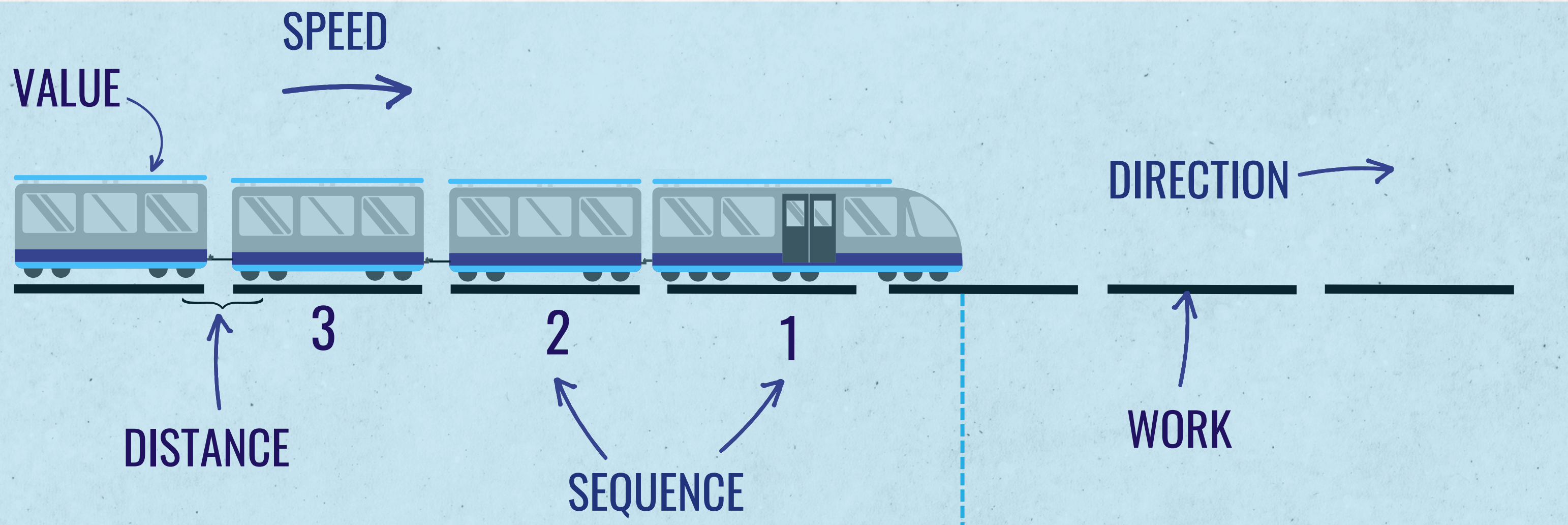
- ADJUST TAKT ZONES
- ADJUST TAKT TIME
- ADJUST WORK PACKAGING
- ADJUST THE SEQUENCE
- LEVEL LABOR COUNTS AND ADJUST CREW COMPOSITION
- OPTIMIZE TRADE PROCESSES
- OPTIMIZE ZONE CONFIGURATION
- ADJUST THE NUMBER OF ZONES
- INCREASE LABOR PRODUCTIVITY BY INCREASING THEIR CAPABILITY
- REDUCE VARIATION
- ALIGN THE PLAN FOR BETTER ONE-PROCESS-FLOW
- IMPROVE STANDARD WORK
- ADJUST SITE CONFIGURATION
- MINE FOR UNFORESEEN CONDITIONS

ROADBLOCKS ARE

ITEMS TO BE CLEARED AHEAD OF THE TRAIN OF TRADES

- RFI NOT ANSWERED
- LAYOUT NOT READY OR INCORRECT
- WORK AREA NOT MADE READY
- MISSING MATERIAL OR EQUIPMENT
- CREW NOT READY AHEAD
- IMPROPER PLANNING
 - OVER-COMMITTED
 - MISCOMMUNICATED
 - CHANGE IN WORK PLAN
 - SAFETY CONCERN
- IMPROPER SEQUENCE
- RESOURCES UNAVAILABLE
- WORK NOT AUTHORIZED
- CHANGE IN WORK PLAN BY OWNER

WITH THE TAKT PRODUCTION SYSTEM AND LAST PLANNER WE CAN SEE THE TRAIN AND THE WORK AHEAD



CONSTRAINTS ARE

ITEMS THAT ARE A PART OF THE DESIGN OF THE TRAIN OF TRADES THAT CAN BE ADJUSTED

ROADBLOCKS ARE

ITEMS TO BE CLEARED AHEAD OF THE TRAIN OF TRADES

ALL WORK IS MAINTAINED WITH TAKT STEERING & CONTROL

LEVELING WORK

- Adjusting Takt zones
- Adjusting work packages and work steps
- Leveling information flow
- Level manpower
- Adjusting work so each WAGON has buffers

MANAGE PRODUCTION

- Optimize bottlenecks
- Optimize cycle times
- Reducing batch sizes
- Increase Labor productivity
- Reduce variation
- Focus on one-process flow

**RESPONSE
TO CONSTRAINTS**

FOREMAN & SUPER CONTROL

- Pre-stage materials
- Prepare for the next task
- Improve hand-offs
- Pull contractors into the area
- Train and prepare workers
- Bring materials and equipment just in time (JIT) with buffers

CREATING STABILITY

- Clean, safe, and organized project
- Team is balanced and healthy
- Managing delays as a team
- Hold start dates
- Engage an effective meeting system
- Hold daily huddles

QUALITY PRODUCT

- Quality at the source
- Finish as you go
- Create standard work
- Pre-fabrication as much as you can
- Using a consistent quality process
- Create quality triggers in the schedule

ROADBLOCK REMOVAL

- Use and manage buffers
- Seeing deviations real-time
- Utilize make-ready look-ahead planning
- Use roadblock maps
- Remove roadblocks

**RESPONSE
TO ROADBLOCKS**

THE SYSTEM IS
DESIGNED TO GET
THE FOREMEN
EVERYTHING
THEY NEED



**GENERAL CONTRACTOR
RESPONSIBILITIES**

QUALITY EXPECTATIONS

MATERIALS

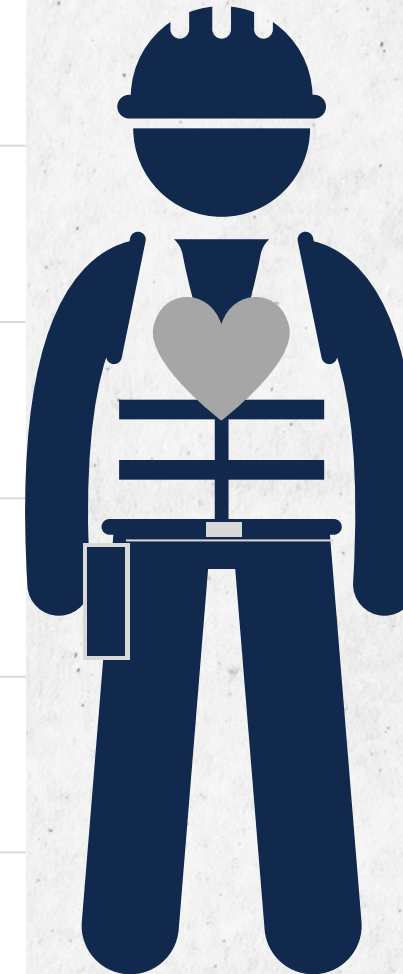
LAYOUT

INFORMATION

PLAN

STABILITY

RESPECT



**EMPLOYER
RESPONSIBILITIES**

EXPERTISE

LABOR

TOOLS

EQUIPMENT



WORKFORCE CARE PLAN





THE PROJECT WAS SAFE WITH
A REMARKABLE CULTURE

THE TEAM WAS HIGH-
FUNCTIONING & HAPPY

PEOPLE ON THE TEAM MET THEIR
CAREER GOALS WHILE THERE, & HAD
A WELL ROUNDED EXPERIENCE

THE OWNERS & DESIGNERS
ARE RAVING FANS

TRADE PARTNERS
WERE SUCCESSFUL

THE PROJECT WAS
BUILT WITH HIGH QUALITY

THE PROJECT WAS WITHIN TEN PERCENT
OF THE ORIGINAL PROFIT TARGETS